Amendments to the Specification:

Please replace paragraph [0053] with the following amended paragraph:

[0053] FIG. 1 through FIG. 4 further shows that housing 12 is formed with a generally cup-shaped depression 20. More specifically, the cup-shaped depression has a generally flat bottom and four flat sides. Each side is preferably connected to an adjacent side by a rounded corner, and each side is preferably connected to the bottom by a rounded corner. This depression contains a generally cup-shaped cathode portion 22a that mates with a planar-shaped cathode portion 22b on lid 14 which encloses the chamber forming cathode 22. The surfaces of the cathode portions 22a and 22b are covered with a conductive neutron-capturing layer 24, which is a layer of a material with high capture cross-section for thermal neutrons such as lithium-6 (6Li), boron-10 (10B), gadolinium (Gd), or compounds of each. It is to be understood that the high reactivity of the 6Li keeps a working gas within cathode 22 free of oxygen and the compounds thereof, such as **[[**H_20**]]** $\underline{H_2O}$, CO_2, and other gases that can capture the free electrons and create electronegative ions. It is known that Li metal has high chemical reactivity, wherein it readily combines with oxygen and other compounds and removes them from the gas, thereby keeping it clean.

Please replace paragraph [0074] with the following amended paragraph:

[0074] Significant conclusions can be drawn from the experimental data of FIG. 7, including the following. (1) Neutron pulse height spectrum is separated from the gamma spectrum, therefore a threshold above 10% of maximum pulse height distribution should thereby separate the neutrons from the gammas. The neutrons left below the threshold are less that 10% of the total neutrons. (2) The shape of the pulse height spectrum does not substantially ~~dependent~~ depend on the HV bias voltage. This gives rise to two advantages: (i) the detector is not as sensitive to HV variations as a proportional counter; and (ii) the shape of the detection cell can be varied significantly to improve emitting surface and manufacturability while retaining efficient collection characteristics.

Please replace paragraph [0078] with the following amended paragraph:

[0078] In the above-described detector having a cathode with an interior measuring approximately 5" x 5" x 2.5", about 1000 cubic centimeters of working gas such as argon, can be held therein under atmospheric pressure. This exemplary, non-limiting embodiment of the detector has an interior wall surface of approximately six hundred centimeters squared ~~(600 cm sq.)~~ (600 cm^2) For comparison, a one meter (1 m) long, twelve millimeter (12 mm) diameter ionization chamber with a working gas pressurized to ten atmospheres (10 atm) has a nearly equivalent volume of gas, eleven hundred cubic centimeters ~~(1100 ccm)~~ (1100 cm^3) and a wall area of approximately three hundred and eighty centimeters squared ~~(380 cm sq.)~~ (380 cm^2). Each chamber has similar sensitivity to gamma radiation.